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RAW SEQUENCE LISTING

DATE: 11/01/2001

PATENT APPLICATION: US/09/735,786

TIME: 14:31:50

Input Set : N:\Crf3\RULE60\09735786.raw

Output Set: N:\CRF3\11012001\I735786.raw

4 <110> APPLICANT: Guarente, Leonard
 5 Imai, Shin-ichiro
 6 Armstrong, Christopher
 8 <120> TITLE OF INVENTION: METHODS FOR IDENTIFYING AGENTS WHICH
 9 ALTER HISTONE PROTEIN ACETYLATION, DECREASE AGING, INCREASE
 10 LIFESPAN
 12 <130> FILE REFERENCE: 0050.1618-000
 14 <140> CURRENT APPLICATION NUMBER: 09/735,786
 15 <141> CURRENT FILING DATE: 2000-12-13
 17 <150> PRIOR APPLICATION NUMBER: 09/461,580
 18 <151> PRIOR FILING DATE: 1999-12-15
 20 <160> NUMBER OF SEQ ID NOS: 35
 22 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 24 <210> SEQ ID NO: 1
 25 <211> LENGTH: 737
 26 <212> TYPE: PRT
 27 <213> ORGANISM: Mus musculus
 29 <400> SEQUENCE: 1
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 31 1 5 10 15
 32 Ala Ala Ala Ala Met Glu Ala Ala Ser Gln Pro Ala Asp Glu Pro Leu
 33 20 25 30
 34 Arg Lys Arg Pro Arg Arg Asp Gly Pro Gly Leu Gly Arg Ser Pro Gly
 35 35 40 45
 36 Glu Pro Ser Ala Ala Val Ala Pro Ala Ala Ala Gly Cys Glu Ala Ala
 37 50 55 60
 38 Ser Ala Ala Ala Pro Ala Ala Leu Trp Arg Glu Ala Ala Gly Ala Ala
 39 65 70 75 80
 40 Ala Ser Ala Glu Arg Glu Ala Pro Ala Thr Ala Val Ala Gly Asp Gly
 41 85 90 95
 42 Asp Asn Gly Ser Gly Leu Arg Arg Glu Pro Arg Ala Ala Asp Asp Phe
 43 100 105 110
 44 Asp Asp Asp Glu Gly Glu Glu Glu Asp Glu Ala Ala Ala Ala Ala
 45 115 120 125
 46 Ala Ala Ala Ile Gly Tyr Arg Asp Asn Leu Leu Leu Thr Asp Gly Leu
 47 130 135 140
 48 Leu Thr Asn Gly Phe His Ser Cys Glu Ser Asp Asp Asp Arg Thr
 49 145 150 155 160
 50 Ser His Ala Ser Ser Ser Asp Trp Thr Pro Arg Pro Arg Ile Gly Pro
 51 165 170 175
 52 Tyr Thr Phe Val Gln Gln His Leu Met Ile Gly Thr Asp Pro Arg Thr
 53 180 185 190
 54 Ile Leu Lys Asp Leu Leu Pro Glu Thr Ile Pro Pro Pro Glu Leu Asp
 55 195 200 205
 56 Asp Met Thr Leu Trp Gln Ile Val Ile Asn Ile Leu Ser Glu Pro Pro
 57 210 215 220
 58 Lys Arg Lys Lys Arg Lys Asp Ile Asn Thr Ile Glu Asp Ala Val Lys

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59 225                230                235                240
60 Leu Leu Gln Glu Cys Lys Lys Ile Ile Val Leu Thr Gly Ala Gly Val
61                245                250                255
62 Ser Val Ser Cys Gly Ile Pro Asp Phe Arg Ser Arg Asp Gly Ile Tyr
63                260                265                270
64 Ala Arg Leu Ala Val Asp Phe Pro Asp Leu Pro Asp Pro Gln Ala Met
65                275                280                285
66 Phe Asp Ile Glu Tyr Phe Arg Lys Asp Pro Arg Pro Phe Phe Lys Phe
67                290                295                300
68 Ala Lys Glu Ile Tyr Pro Gly Gln Phe Gln Pro Ser Leu Cys His Lys
69 305                310                315                320
70 Phe Ile Ala Leu Ser Asp Lys Glu Gly Lys Leu Leu Arg Asn Tyr Thr
71                325                330                335
72 Gln Asn Ile Asp Thr Leu Glu Gln Val Ala Gly Ile Gln Arg Ile Leu
73                340                345                350
74 Gln Cys His Gly Ser Phe Ala Thr Ala Ser Cys Leu Ile Cys Lys Tyr
75                355                360                365
76 Lys Val Asp Cys Glu Ala Val Arg Gly Asp Ile Phe Asn Gln Val Val
77                370                375                380
78 Pro Arg Cys Pro Arg Cys Pro Ala Asp Glu Pro Leu Ala Ile Met Lys
79 385                390                395                400
80 Pro Glu Ile Val Phe Phe Gly Glu Asn Leu Pro Glu Gln Phe His Arg
81                405                410                415
82 Ala Met Lys Tyr Asp Lys Asp Glu Val Asp Leu Leu Ile Val Ile Gly
83                420                425                430
84 Ser Ser Leu Lys Val Arg Pro Val Ala Leu Ile Pro Ser Ser Ile Pro
85                435                440                445
86 His Glu Val Pro Gln Ile Leu Ile Asn Arg Glu Pro Leu Pro His Leu
87                450                455                460
88 His Phe Asp Val Glu Leu Leu Gly Asp Cys Asp Val Ile Ile Asn Glu
89 465                470                475                480
90 Leu Cys His Arg Leu Gly Gly Glu Tyr Ala Lys Leu Cys Cys Asn Pro
91                485                490                495
92 Val Lys Leu Ser Glu Ile Thr Glu Lys Pro Pro Arg Pro Gln Lys Glu
93                500                505                510
94 Leu Val His Leu Ser Glu Leu Pro Pro Thr Pro Leu His Ile Ser Glu
95                515                520                525
96 Asp Ser Ser Ser Pro Glu Arg Thr Val Pro Gln Asp Ser Ser Val Ile
97                530                535                540
98 Ala Thr Leu Val Asp Gln Ala Thr Asn Asn Asn Val Asn Asp Leu Glu
99 545                550                555                560
100 Val Ser Glu Ser Ser Cys Val Glu Glu Lys Pro Gln Glu Val Gln Thr
101                565                570                575
102 Ser Arg Asn Val Glu Asn Ile Asn Val Glu Asn Pro Asp Phe Lys Ala
103                580                585                590
104 Val Gly Ser Ser Thr Ala Asp Lys Asn Glu Arg Thr Ser Val Ala Glu
105                595                600                605
106 Thr Val Arg Lys Cys Trp Pro Asn Arg Leu Ala Lys Glu Gln Ile Ser
107                610                615                620

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108 Lys Arg Leu Glu Gly Asn Gln Tyr Leu Phe Val Pro Pro Asn Arg Tyr
109 625                      630                      635                      640
110 Ile Phe His Gly Ala Glu Val Tyr Ser Asp Ser Glu Asp Asp Val Leu
111                      645                      650                      655
112 Ser Ser Ser Ser Cys Gly Ser Asn Ser Asp Ser Gly Thr Cys Gln Ser
113                      660                      665                      670
114 Pro Ser Leu Glu Glu Pro Leu Glu Asp Glu Ser Glu Ile Glu Glu Phe
115                      675                      680                      685
116 Tyr Asn Gly Leu Glu Asp Asp Thr Glu Arg Pro Glu Cys Ala Gly Gly
117                      690                      695                      700
118 Ser Gly Phe Gly Ala Asp Gly Gly Asp Gln Glu Val Val Asn Glu Ala
119 705                      710                      715                      720
120 Ile Ala Thr Arg Gln Glu Leu Thr Asp Val Asn Tyr Pro Ser Asp Lys
121                      725                      730                      735
122 Ser
126 <210> SEQ ID NO: 2
127 <211> LENGTH: 272
128 <212> TYPE: PRT
129 <213> ORGANISM: Saccharomyces cerevisiae
131 <400> SEQUENCE: 2
132 Ile Asn Lys Val Leu Cys Thr Arg Leu Arg Leu Ser Asn Phe Phe Thr
133 1                      5                      10                      15
134 Ile Asp His Phe Ile Gln Lys Leu His Thr Ala Arg Lys Ile Leu Val
135                      20                      25                      30
136 Leu Thr Gly Ala Gly Val Ser Thr Ser Leu Gly Ile Pro Asp Phe Arg
137                      35                      40                      45
138 Ser Ser Glu Gly Phe Tyr Ser Lys Ile Lys His Leu Gly Leu Asp Asp
139                      50                      55                      60
140 Pro Gln Asp Val Phe Asn Tyr Asn Ile Phe Met His Asp Pro Ser Val
141 65                      70                      75                      80
142 Phe Tyr Asn Ile Ala Asn Met Val Leu Pro Pro Glu Lys Ile Tyr Ser
143                      85                      90                      95
144 Pro Leu His Ser Phe Ile Lys Met Leu Gln Met Lys Gly Lys Leu Leu
145                      100                     105                     110
146 Arg Asn Tyr Thr Gln Asn Ile Asp Asn Leu Glu Ser Tyr Ala Gly Ile
147                      115                     120                     125
148 Ser Thr Asp Lys Leu Val Gln Cys His Gly Ser Phe Ala Thr Ala Thr
149                      130                     135                     140
150 Cys Val Thr Cys His Trp Asn Leu Pro Gly Glu Arg Ile Phe Asn Lys
151 145                     150                     155                     160
152 Ile Arg Asn Leu Glu Leu Pro Leu Cys Pro Tyr Cys Tyr Lys Lys Arg
153                      165                     170                     175
154 Arg Glu Tyr Phe Pro Glu Gly Tyr Asn Asn Lys Val Gly Val Ala Ala
155                      180                     185                     190
156 Ser Gln Gly Ser Met Ser Glu Arg Pro Pro Tyr Ile Leu Asn Ser Tyr
157                      195                     200                     205
158 Gly Val Leu Lys Pro Asp Ile Thr Phe Phe Gly Glu Ala Leu Pro Asn
159                      210                     215                     220
160 Lys Phe His Lys Ser Ile Arg Glu Asp Ile Leu Glu Cys Asp Leu Leu

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161 225          230          235          240
162 Ile Cys Ile Gly Thr Ser Leu Lys Val Ala Pro Val Ser Glu Ile Val
163          245          250          255
164 Asn Met Val Pro Ser His Val Pro Gln Val Leu Ile Asn Arg Asp Pro
165          260          265          270
168 <210> SEQ ID NO: 3
169 <211> LENGTH: 267
170 <212> TYPE: PRT
171 <213> ORGANISM: Saccharomyces cerevisiae
173 <400> SEQUENCE: 3
174 Ile Asn Lys Val Leu Ser Thr Arg Leu Arg Leu Pro Asn Phe Asn Thr
175 1          5          10          15
176 Ile Asp His Phe Thr Ala Thr Leu Arg Asn Ala Lys Lys Ile Leu Val
177          20          25          30
178 Leu Thr Gly Ala Gly Val Ser Thr Ser Leu Gly Ile Pro Asp Phe Arg
179          35          40          45
181 Ser Ser Glu Gly Phe Tyr Ser Lys Ile Arg His Leu Gly Leu Glu Asp
182          50          55          60
183 Pro Gln Asp Val Phe Asn Leu Asp Ile Phe Leu Gln Asp Pro Ser Val
184 65          70          75          80
185 Phe Tyr Asn Ile Ala His Met Val Leu Pro Pro Glu Asn Met Tyr Ser
186          85          90          95
187 Pro Leu His Ser Phe Ile Lys Met Leu Gln Asp Lys Gly Lys Leu Leu
188          100         105         110
189 Arg Asn Tyr Thr Gln Asn Ile Asp Asn Leu Glu Ser Tyr Ala Gly Ile
190          115         120         125
191 Asp Pro Asp Lys Leu Val Gln Cys His Gly Ser Phe Ala Thr Ala Ser
192          130         135         140
193 Cys Val Thr Cys His Trp Gln Ile Pro Gly Glu Lys Ile Phe Glu Asn
194 145         150         155         160
195 Ile Arg Asn Leu Glu Leu Pro Leu Cys Pro Tyr Cys Tyr Gln Lys Arg
196          165         170         175
197 Lys Gln Tyr Phe Pro Met Ser Asn Gly Asn Asn Thr Val Gln Thr Asn
198          180         185         190
199 Ile Asn Phe Asn Ser Pro Ile Leu Lys Ser Tyr Gly Val Leu Lys Pro
200          195         200         205
201 Asp Met Thr Phe Phe Gly Glu Ala Leu Pro Ser Arg Phe His Lys Thr
202          210         215         220
203 Ile Arg Lys Asp Ile Leu Glu Cys Asp Leu Leu Ile Cys Ile Gly Thr
204 225          230          235          240
205 Ser Leu Lys Val Ala Pro Val Ser Glu Ile Val Asn Met Val Pro Ser
206          245          250          255
207 His Val Pro Gln Ile Leu Ile Asn Arg Asp Met
208          260          265
211 <210> SEQ ID NO: 4
212 <211> LENGTH: 245
213 <212> TYPE: PRT
214 <213> ORGANISM: Mus musculus
216 <400> SEQUENCE: 4

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```

217 Val Ile Asn Ile Leu Ser Glu Pro Pro Lys Arg Lys Lys Arg Lys Asp
218 1 5 10 15
219 Ile Asn Thr Ile Glu Asp Ala Val Lys Leu Leu Gln Glu Cys Lys Lys
220 20 25 30
221 Ile Ile Val Leu Thr Gly Ala Gly Val Ser Val Ser Cys Gly Ile Pro
222 35 40 45
223 Asp Phe Arg Ser Arg Asp Gly Ile Tyr Ala Arg Leu Ala Val Asp Phe
224 50 55 60
225 Pro Asp Leu Pro Asp Pro Gln Ala Met Phe Asp Ile Glu Tyr Phe Arg
226 65 70 75 80
227 Lys Asp Pro Arg Pro Phe Phe Lys Phe Ala Lys Glu Ile Tyr Pro Gly
228 85 90 95
229 Gln Phe Gln Pro Ser Leu Cys His Lys Phe Ile Ala Leu Ser Asp Lys
230 100 105 110
231 Glu Gly Lys Leu Leu Arg Asn Tyr Thr Gln Asn Ile Asp Thr Leu Glu
232 115 120 125
233 Gln Val Ala Gly Ile Gln Arg Ile Leu Gln Cys His Gly Ser Phe Ala
234 130 135 140
235 Thr Ala Ser Cys Leu Ile Cys Lys Tyr Lys Val Asp Cys Glu Ala Val
236 145 150 155 160
237 Arg Gly Asp Ile Phe Asn Gln Val Val Pro Arg Cys Pro Arg Cys Pro
238 165 170 175
240 Ala Asp Glu Pro Leu Ala Ile Met Lys Pro Glu Ile Val Phe Phe Gly
241 180 185 190
242 Glu Asn Leu Pro Glu Gln Phe His Arg Ala Met Lys Tyr Asp Lys Asp
243 195 200 205
244 Glu Val Asp Leu Leu Ile Val Ile Gly Ser Ser Leu Lys Val Arg Pro
245 210 215 220
246 Val Ala Leu Ile Pro Ser Ser Ile Pro His Glu Val Pro Gln Ile Leu
247 225 230 235 240
248 Ile Asn Arg Glu Pro
249 245
252 <210> SEQ ID NO: 5
253 <211> LENGTH: 237
254 <212> TYPE: PRT
255 <213> ORGANISM: Escherichia coli
257 <400> SEQUENCE: 5
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259 1 5 10 15
260 Ala Glu Ser Gly Ile Arg Thr Phe Arg Ala Ala Asp Gly Leu Trp Glu
261 20 25 30
262 Glu His Arg Val Glu Asp Val Ala Thr Pro Glu Gly Phe Ala Arg Asn
263 35 40 45
264 Pro Gly Leu Val Gln Thr Phe Tyr Asn Ala Arg Arg Gln Gln Leu Gln
265 50 55 60
266 Gln Pro Glu Ile Gln Pro Asn Ala Ala His Leu Ala Leu Ala Asn Leu
267 65 70 75 80
268 Lys Lys Arg Leu Ala Ile Ala Phe Leu Leu Val Thr Gln Asn Ile Asp
269 85 90 95

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VERIFICATION SUMMARY

PATENT APPLICATION: US/09/735,786

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TIME: 14:31:51

Input Set : N:\Crf3\RULE60\09735786.raw

Output Set: N:\CRF3\11012001\I735786.raw

L:1114 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27